D.P.U. 96-6-CC

Investigation by the Department of Public Utilities into Massachusetts Electric Company's conservation charges, and the various components of those charges including, but not limited to, Massachusetts Electric Company's 1994 Demand-Side Management Performance Measurement Report.

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I. INTRODUCTION

A. Procedural History

On July 14, 1995, Massachusetts Electric Company ("MECo" or "Company") filed its 1994 Demand-Side Management Performance Measurement Report ("Report") with the Department of Public Utilities ("Department"). The Company's Report and its accompanying appendices provide descriptions of the Company's impact and process evaluation results[1] for its 1994 demand-side management ("DSM") programs. The results of these evaluations are used by the Company and the Department for planning purposes and for determining the incentive earned by the Company as a result of the implementation of its DSM programs during 1994. The DSM incentive will be recovered through the Company's 1996 Conservation Charge ("CC") rates. On November 6, 1995, the Company submitted to the Department its 1996 proposed CC rate filing.

The Department's review of the filing examines issues including, but not limited to, the impact evaluations contained in the Report which serve as a basis for evaluating and calculating the demand and energy savings that may result from the implementation of the Company's DSM programs in 1995 and 1996. These matters were docketed as D.P.U. 96-6-CC.

Pursuant to notice duly issued, a hearing on the Company's Report and CC rates was held on November 14, 1995 at the Department's offices in Boston. The Conservation Law Foundation ("CLF") was granted leave to participate in the proceeding.

In support of the Report and proposed CC rates, the Company presented the testimony of

[1] Impact evaluations use quantitative analyses to assess energy and capacity savings resulting from the implementation of DSM programs. Process evaluations focus on qualitative issues such as program design and operational efficiency. Massachusetts Electric Company, D.P.U. 90-261, at 99 (1991).

four witnesses: Elizabeth G. Hicks, director of planning for New England Power Service Company ("NEPSCo"); David I. Jacobson, principal analyst for NEPSCo; Jeremy Newberger, senior analyst for NEPSCo; and Colleen Gardner, senior rate analyst for NEPSCo. The evidentiary record includes three exhibits submitted by the Company, 82 exhibits submitted by the Department, and responses to four record requests issued to MECo by the Department.

B. Background

The impact evaluations included in the Report contain estimates of DSM savings resulting from the installation of energy conservation measures ("ECMs") during 1993 and 1994. The Company's determination of DSM savings estimates in a particular year is based on a four-step process. Massachusetts Electric Company, D.P.U. 92-217-B at 1-2 (1994). First, initial estimates of program savings are determined in advance of the program year, using engineering calculations of savings per ECM[2] and projections of how many measures of each type will be installed. These initial estimates are presented to the Department to project program cost-effectiveness. Id. Second, at the end of each program year, the Company updates its initial savings estimates to reflect the actual number of ECMs installed in that year; the Company refers to these updated estimates as "tracking estimates." Id. Third, the Company conducts a first round of post-installation measurements to provide more accurate estimates[3] of the energy and

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[2] The engineering calculations of savings estimates may be informed by previous evaluations.

[3] The Department has recognized that kilowatts and kilowatthours saved by DSM programs are not as easily measured as kilowatts and kilowatthours generated or consumed. Massachusetts Electric Company, D.P.U. 90-261, at 100 (1991). Because DSM savings cannot be measured exactly, savings measurement results are referred to as savings

capacity savings resulting from the installation of the ECMs. MECo refers to these measurements as the "first look" evaluation of savings, which are submitted in June of the year following the program year when those measures were installed. Id. Finally, pursuant to the terms of the Settlement approved by the Department in Massachusetts Electric Company, D.P.U. 92-217 (1993), the Company is required to conduct a second round of post-installation savings measurements, referred to as the "second look" evaluation of savings, for those programs that were first introduced or were "substantially redesigned" during the program year, or in which the first look savings estimates differed from the tracking estimates by more than ten percent (See D.P.U. 92-217, Offer of Settlement at 8). The second look savings estimates replace the first look estimates since they are based on more complete data that are sometimes collected through a full year of post-installation measurements. The second look evaluations are submitted to the Department one year after the first look evaluations. D.P.U. 92-217-B at 1-2.

The Company's Report contains the first look savings estimates for ECMs installed in 1994. Based on these savings estimates, MECo has proposed recovery of a 1994 after-tax incentive of approximately $2.6 million (Exh. ME-1, at I-9).[4] Table 1, attached to this Order, summarizes the results of MECo's DSM activities in 1994.

In this Order, the Department addresses whether the impact evaluations included in the

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estimates.

4 The after-tax incentive amount is based on a formula approved by the Department. See D.P.U. 92-217 Offer of Settlement, Att. 1, App. A. Pursuant to D.P.U. 92-217, the Company shall recover the 1994 incentive through its CC rates. Id., Offer of Settlement, Att. 1, at 7-8.

Company's Report satisfy the criteria established by the Department for the review of such evaluations,[5] and approves savings estimates for 1993 and 1994 derived from said evaluations. In addition, the Department addresses whether the Company's proposed 1996 CC rates are appropriate and are supported by the record in this proceeding. Because the Company's incentive payment associated with the implementation of DSM programs during 1994 is based on the savings estimates included in the Report, the Company may be required to recalculate the incentives, and, therefore, the CC rates, to reflect findings and directives in this Order.

II. STANDARD OF REVIEW FOR DSM IMPACT EVALUATIONS

In D.P.U. 92-217-B, the Department introduced a standard of review that would be applied to impact evaluations. The Department stated that, in order for a company's DSM savings estimates to be accepted, a company must demonstrate that its impact evaluations are reviewable, appropriate, and reliable.

An impact evaluation is considered reviewable if it is complete, clearly presented, and contains a summary that sufficiently explains all assumptions and data presented. An impact evaluation is considered appropriate if evaluation techniques selected are reasonable given consideration of the characteristics of a particular DSM program, the company's resources, and the available methods for determining demand and energy savings estimates.[6] Finally, an impact

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5 The Department does not address in this Order the process evaluations included in the Report. The Department notes that electric companies are expected to consider all recommendations contained in the process evaluations and to revise program designs to reflect those recommendations that the companies consider to be appropriate.

6 The Department recognizes that the state-of-the-art methods used to determine DSM savings estimates are evolving and expects companies to remain up to date with technological

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evaluation is considered reliable if the savings estimates included in the evaluation are sufficiently unbiased and are measured to a sufficient level of precision, again, given consideration of the characteristics of a particular DSM program, the company's resources and the available methods for determining demand and energy savings estimates.

III. THE COMPANY'S DSM IMPACT EVALUATIONS

A. Introduction

The Company submitted impact evaluations for all of the DSM programs implemented during 1994. Programs targeting the commercial/industrial ("C/I") sector include the Energy Initiative ("EI"), Design 2000, Small C/I, Performance Engineering and Verification ("PE"), and C/I Complementary programs (Exh. ME-1, at I-2). Programs targeting the residential sector include the Electric Space Heat ("ESH"), Multi-Family Retrofit ("Multi-Family"), Residential Lighting ("Lighting"), Energy Fitness, Appliance Recycling, Energy Crafted Home ("ECH"), Super Efficient Refrigerator ("SERP"), and Complementary programs (id. at I-2 and I-3).

Table 2 attached to this Order compares the first look 1994 annual and lifetime savings estimates for each program with the tracking estimates. Table 3 attached to this Order compares the second look 1993 annual and lifetime savings estimates for each program with the first look approved by the Department in D.P.U. 95-6-CC. Table 4 attached to this Order summarizes MECo's reported savings by end use.

B. Reviewability

As stated above, an impact evaluation is considered reviewable if it is complete, clearly

(...continued)
and methodological advances in the field.

presented, and contains a summary that sufficiently explains all assumptions and data presented. The Company has presented all of the information regarding savings estimates for 1993 and 1994 DSM program implementation in a clear and complete manner, with all assumptions and data sufficiently explained. Accordingly, the Department finds that the impact evaluations filed by the Company are reviewable.

C. Appropriateness

An impact evaluation is considered appropriate if evaluation techniques are reasonable for a particular DSM program, a company's resources, and the available methods for determining savings estimates. As noted in the following sections, the Company's savings estimates are based on end-use metering, billing analyses, and enhanced engineering estimates supported by site visits and detailed measurements. The Department has approved these methods as being appropriate for the types of programs implemented by the Company. See Massachusetts Electric Company, D.P.U. 90-261, at 102-110, and D.P.U. 92-217-B, at 7-16. Accordingly, the Department finds that the impact evaluations filed by the Company are appropriate. The Department examines below whether the savings estimates for each program are reliable by determining if they are unbiased and sufficiently precise.

D. Commercial/Industrial Sector

1. Jointly Evaluated Programs

a. Introduction

The Company conducted 20 technology-specific impact evaluations to determine the savings of four programs offered: EI, Design 2000, PE, and C/I Complementary (Exh. ME-1, at III-2, IV-4, and IV-5). End uses addressed through the four programs include energy-efficient lighting; heating, ventilation, and air conditioning systems ("HVAC"); variable speed drives for motors ("VSDs"); premium efficiency motors; refrigeration systems; compressed air systems; energy management systems ("EMS"); other custom and industrial process equipment; and building shell improvements (id. at I-27, I-29, I-39, I-48, App. I-1-8, App. I-1-9, and I-1-20).

The EI program promotes the retrofit of ECMs and efficient energy management practices in existing commercial, industrial and governmental structures (id. at I-39). The program provided financial rebates for the installation of ECMs as well as technical information and assistance, plus commissioning services for large, complex projects for 722 customers in 1994 (id.).

The Design 2000 program targets time-dependent opportunities for the installation of energy-efficient equipment in the new construction, renovation, remodeling, and failed equipment replacement markets (id. at I-28). The program provided financial rebates for the installation of ECMs, technical information and assistance, and commissioning services for large, complex projects to 513 customers in 1994 (id. at I-28 and I-29).

The PE program identified cost-effective non-lighting ECMs that would qualify for rebates through EI or Design 2000, and monitored the performance of the installed ECMs for two years at 36 projects installed in 1994 (id. at I-48). The Company closed the PE program to new projects at the end of 1993, but completed projects in 1994 (id.).

The C/I Complementary program delivered services not covered by other programs, in 1994 consisting of process system controls and a pump system upgrade at a single paper mill (id. at I-27).

b. Billing Analyses

To estimate savings from installations in 1993 and 1994, MECo conducted a billing analysis of the savings from the prescriptive lighting component of the EI program (Exh. ME-1, at III-2). Using eight variables, 384 participants from 1993, 299 non-participants, and 22,409 monthly observations, the Company estimated a realization rate[7] of 70 percent, plus or minus 8 percent (with 90 percent confidence) for this component (id. at III-11 and III-12). The Company checked the stability of the model with a variety of alternative specifications, reporting realization rates of 60 to 70 percent for its own alternatives and 69 to 72 percent for alternatives specified by the Department (id. at App. III-1, at 4-8; Exhs. DPU-72 and DPU-73). The Department finds that the net energy savings estimates produced by the Company's analysis for EI lighting are unbiased and sufficiently precise, and hereby accepts these estimates.

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[7] A realization rate is the ratio of the savings measured by an impact evaluation to the savings estimated by a Company's tracking system when ECMs are installed (Exh. ME-1, App. IV-2, at 4).

c. <u>End-Use Metering Analyses</u>

MECo conducted one sample-based end-use metering study of prescriptive lighting for EI and another for Design 2000 (Exh. ME-1, at IV-4). The EI study, using a stratified and weighted sample of 44 sites, estimated a realization rate for connected demand of 95 percent (± 5 percent) at 1993 installations, with corresponding realization rates for summer and winter coincident peak demand (<u>id.</u> at App. IV-2, at 4). The EI study similarly estimated a 96 percent realization rate (± 6 percent) at 1994 installations, with corresponding coincident peak demand realization rates (<u>id.</u> at App. IV-2, at 5). A similar study for Design 2000 used 92 sites to estimate overall load shapes plus realization rates for hours of use of 108 percent (± 6 percent) at 1993 installations and 111 percent (± 7 percent) at 1994 installations, with corresponding realization rates for summer and winter coincident peak diversity (<u>id.</u> at App. IV-3, at ii). The Department finds that these gross savings estimates for EI lighting and Design 2000 lighting are unbiased and sufficiently precise, and are hereby accepted.

d. <u>Enhanced Engineering Analyses</u>

In Appendices IV-4 through IV-20, each addressing a particular technology installed, usually at several sites, the Company reported the results of enhanced engineering studies prepared by independent evaluators during the months after the ECMs were installed (Exh. ME-1, at I-26 and I-27). The studies employed on-site surveys and/or metering to collect data, then analyzed the data collected to develop updated site-specific savings estimates and savings parameters for a number of ECMs (<u>id.</u> at IV-33).

The Company reported that calculation of demand savings from thermal storage, motor run-time and persistence, and savings from certain small C/I and EI refrigeration ECMs were based directly on end-use metering of all the relevant data and calculations using appropriate simulation models (id., at IV-19 through IV-32, and Apps. IV-4, IV-5, IV-17, IV-18, and IV-19). The Department finds these gross savings estimates to be unbiased and sufficiently precise, and they are hereby accepted.

The Department has concentrated its review of the twelve other enhanced engineering analysis studies on those that account for most of the claimed savings.[8] The studies detailed data collection, generally including spot current metering and hour-logging, and data analysis, often with complex simulation models, at well over 100 sites (id. at Apps. IV-6, IV-7, IV-8, IV-11, IV-13, IV-14, IV-15, IV-16, and IV-20).

In these studies, the Department detected several problems that required revisions to savings estimates. These problems resulted from (1) not accounting for certain operating schedule information, (2) rejecting metered data in favor of assumptions or mis-reading of metered data, (3) not accounting for several small effects that in aggregate made a measurable difference, and/or (4) making errors in calculations. The Company has provided revisions to its savings estimates which correct these problems (Exhs. DPU-22, DPU-51, DPU-58, DPU-67, DPU-69, at 2; RR-DPU-2, at 2). On balance, these revisions increase the Company's reported annual savings by 193 MWH and 26 KW, or about 0.1 percent (id.). With these revisions, the savings estimates are based largely on measured data combined with tested simulation models. The Department finds that these gross savings estimates are unbiased and sufficiently precise, and

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[8] Most of MECo's claimed savings are due to ECMs installed during 1993 and 1994, but about 8,000 annual MWH are due to VSDs installed earlier (Exh. DPU-10).

they are hereby accepted.

e. Free Riders and Other Non-Program Influences

Based on several studies of participants in these programs in 1994 and previous years, MECo estimated net energy and demand savings by adjusting the gross savings estimates approved above to account for non-program influences on savings, such as free riders[9] (Exh. ME-1, at V-15 through V-27; App. I-1; App. II-1). Based on the Department's review of these studies and their results, the Department accepts MECo's net savings estimates for these four jointly evaluated programs.

2. Small C/I

The Small C/I program provided direct installation of efficient lighting and non-lighting ECMs in 1994 to 2,804 customers with monthly demand less than 50 KW or annual use less than 150 MWH (Exh. ME-1, at I-50 and I-51). Savings estimates for refrigeration measures in the Small C/I program were among the technology-specific estimates reviewed for the four jointly evaluated programs and accepted above by the Department. In this section, the Department reviews the savings estimates for lighting in the Small C/I program.

To measure energy savings, MECo conducted a monthly billing analysis using nine variables, 467 participants from 1993, and 366 non-participants, to determine a realization rate of 72 percent (± 17 percent) (id. at App. III-2, at 4-5 and 4-6). MECo checked the stability of the model with several alternative specifications, reporting realization rates of 48 to 83 percent for its own alternatives and 49 to 83 percent for ones specified by the Department (id. at App. III-2,

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9 Free riders are program participants who would have installed an ECM without direct payment from an electric company. D.P.U. 92-217-B at 8.

at 4-6; Exh. DPU-70). Based on its review, the Department finds that these net energy savings estimates are unbiased and sufficiently precise, and they are hereby accepted.

Using a stratified and weighted sample of 41 sites, MECo estimated a realization rate for connected demand of 91 percent (± 6 percent) at both 1993 and 1994 installations, with corresponding realization rates for summer and winter coincident peak demand (Exh. ME-1, at App. IV-1, at 4-5). The Department finds that these gross demand savings estimates are unbiased and sufficiently precise, and they are hereby accepted.

MECo estimated net demand savings by adjusting its gross estimates to account for free riders (id., at V-28, App. I-1 at 21). Based on a review of the methods used to determine the free-rider factors, the Department accepts MECo's net demand savings estimates for the Small C/I program.

E. Residential Programs

1. Electric Space Heat

The ESH program provides direct installation, at no cost to participants, of comprehensive ECMs in electrically heated homes of one to four units (Exh. ME-1, at I-65). The ESH program served 4,668 customers in 1994 (id.). Savings from the program were due to ECMs affecting building shell[10] (50 percent), lighting (27 percent), and water heating (23 percent) (Exh. ME-3, Table 6).

Based on a billing analysis of 1,630 participants and 91 non-participants, MECo estimated net annual savings of 1,161 KWH (± 34 percent) per participant receiving basic ECMs and 2,060

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[10] Building shell ECMs include insulation and efficient windows, as well as air sealing and set-back thermostats (Exh. ME-1, at I-65).

KWH (± 22 percent) per participant receiving more comprehensive ECMs (Exh. ME-1, at App. III-5, at 6-8). To determine net energy savings, MECo multiplied these findings by the number of participants (grouped by comprehensiveness of measures), then adjusted those results to account for free riders (id. at App. III-5, at 7-9). To estimate demand savings, MECo applied to net energy savings an average hours-of-use adjustment factor based on its own load research data (id. at App. III-5, at 9). Based on its review, the Department finds that the Company's savings estimates are unbiased and sufficiently precise, and they are hereby accepted.

2. Lighting

In 1994, 74,459 customers bought compact fluorescent light bulbs ("CFLs") by mail or with rebates at participating retailers (Exh. ME-1, at I-67). MECo surveyed participants to determine free ridership, participant spillover, snapback, snapforward,[11] and persistence(id. at I-67 and I-68; App. II-4, at 5-9 through 5-24).

MECo estimated energy and demand savings based on one short-term study, 126 lighting loggers for five weeks, and one long-term study, 22 loggers for 48 weeks, of the average hours of use of CFLs in homes (id. at App. II-4, at 5-19 through 5-23). MECo determined that lights were on almost three hours a day, more in winter and less in summer, with relative errors of 15 to 25 percent (id., at App. II-4, at 5-22). To determine gross savings, MECo applied the average hours of use and coincidence factors to the number of lamps installed, their wattages, and

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11 Spillover is additional savings induced by a DSM program, but not directly attributable to it. D.P.U. 92-217-B at 8. Snapback is an increase in energy use (e.g., usage resulting from a higher thermostat setting) associated with the savings from installing an ECM. D.P.U. 89-194/195, at 109-110. Snapforward is the opposite of snapback, for example a decrease in hours of use for inefficient lights in homes installing efficient lights (Exh. ME-1, at App. II-4, at 5-24).

participant reports of the wattages of the incandescent bulbs replaced (id., at I-69). To determine net savings, MECo adjusted the gross savings estimates to account for free ridership, participant spillover, and persistence (id. at I-68 and I-69). Based on its review, the Department finds that the Company's savings estimates are unbiased and sufficiently precise, and they are hereby accepted.

3. Energy Fitness

In 1994 the Energy Fitness program installed ECMs through a "piggyback" service with 14,971 customers who received Energy Conservation Service ("ECS") audits (Exh. ME-1, at I-58). Most of the 1994 savings were due to CFLs (54 percent) and cleaning refrigerator coils (44 percent) (id. at App. I-1, at 25).

MECo estimated energy and demand savings for CFLs based on the average hours of use determined by 116 lighting loggers in participant homes for two weeks, adjusted by the results of the Lighting program's long-term study (id. at App. II-4, at 9-10 through 9-13). MECo determined that lights were on only 1.5 hours a day (more in winter and less in summer) with relative errors of 17 to 41 percent (id. at App. II-4, at 9-11 and 9-12). MECo noted that these hours were 46 percent lower than the hours for the Lighting program and 55 percent lower than in the previous evaluation of the Energy Fitness program, which might be due to more CFLs per home, including placement of CFLs in fixtures that are used less (id. at App. II-4, at 9-11). To determine gross savings, MECo applied the average hours of use and coincidence factors to the number of lamps installed, their wattages, and the wattages of the incandescent bulbs replaced, as recorded by ECS auditors (id. at I-60 and App. II-4, at 9-9). To determine net savings, MECo adjusted the gross savings estimates by participant-based survey results to account for free ridership, participant spillover, and persistence (id. at I-68 and I-69; App. II-4, at 9-1 through 9-9). Based on its review, the Department finds that the Company's savings estimates are unbiased and sufficiently precise, and hereby accepts them.

4. Multi-Family

The Multi-Family program provides direct installation of ECMs to electrically heated multi-family facilities with five or more units, at no cost to participants in 1993 or 1994 (Exh. ME-1, at I-61). In 1994 the Multi-Family program served 5,918 participating units (id.). The savings were due to building shell (58 percent), efficient lighting (33 percent), and water heating ECMs (9 percent) (Exh. ME-3, at Table 6). MECo's participant survey found no free riders, except in cases where efficient windows were installed (Exh. ME-1, at I-62).

Based on a monthly billing analysis of 108 participating facilities, MECo estimated realization rates of 87 percent (± 87 percent) for lighting and water heating ECMs and 57 percent (± 15 percent) for building shell ECMs (Exh. ME-1, at I-62; App. III-4, at 9-10). To determine energy savings, MECo applied the realization rates of 87 and 57 percent to its engineering savings estimates (id., at App. III-4 at 9). To estimate demand savings, MECo applied an average hours-of-use adjustment factor based on its own load research data to estimated energy savings (id. at App. III-4, at 10).

The Department notes a lack of support for MECo's savings estimates for lighting and water heating ECMs from the Department's alternative model specification. The Department is also troubled that the Company did not adjust its results to account for free ridership with respect to window replacement. However, the Department notes that (1) the results of the billing analysis are consistent with the results for this program approved in D.P.U. 95-6-CC at 45; and (2) building shell free-rider rates for the ESH program were only 3 percent (id. at App. I-1, at 28), so that the effect of the windows free-rider rate should be even less. Therefore, on balance, the Department does not detect definite and substantial bias in the savings estimates, and they are hereby accepted.

5. Appliance Recycling

In 1994 the Appliance Recycling program collected operable secondary refrigerators and freezers from 7,727 customers (Exh. ME-1, at I-53). Using a two-stage annual billing analysis of 246 participants and 249 non-participants, MECo estimated savings of 616 KWH (± 48 percent) per auto-defrost refrigerator, 439 KWH (± 62 percent) per manual defrost refrigerator, and 862 KWH (± 47 percent) per freezer (id. at App. III-6, at 3-3, 3-4 and 3-10). To determine net energy savings, MECo multiplied these findings, by appliance type, by the number of appliances picked up (Exh. ME-1, at I-55). To estimate demand savings, MECo divided energy savings by the number of hours in a year (id.). Based on its review, the Department finds that the Company's savings estimates are unbiased and sufficiently precise, and hereby accepts them. However, the Department directs the Company to seek improved precision in future evaluations of this program.

6. Other Residential Programs

The record shows that the combined 1993 and 1994 lifetime savings for the Complementary, ECH, SERP, and Water Heater Rebate programs each represent less than

0.2 percent of MECo's total energy savings and 0.6 to 1.7 percent of MECo's demand savings (Exh. ME-1, at App. I-1, at 1). Based on its review of the impact evaluations for these programs, the Department finds that the savings estimates are sufficiently unbiased and precise, and they are hereby accepted.

F. The Company's 1995 DSM Performance Measurement Filing

The Department notes the small percentage changes in the Company's savings estimates from the first look to the second look, and from tracking estimates to the first look. The Department finds that a proceeding may not be required in 1996 to review the Company's savings estimates for 1994 and 1995. Rather, the Department plans to review the Company's 1994, 1995, and preliminary 1996 savings estimates subsequent to a June 1997 filing by MECo, unless the Company requests earlier review by the Department because of substantial revisions to its programs or is otherwise directed by the Department pursuant to an order on restructuring. The Company should file a summary of its savings estimates in June 1996, for the purpose of estimating the incentive earned by the Company for implementation of DSM programs in 1995. The amount of this incentive may then be finalized and reconciled following the Department's review in 1997.

IV. PROPOSED CONSERVATION CHARGE RATES

A. Introduction

In support of the Company's proposed 1996 CCs, MECo submitted (1) revised 1996 budget and participation rates (Exh. ME-2, at Att. 2); (2) expense, value, customer, and evaluation cost summaries (id. at Att. 3); (3) its 1996 CC calculations (id. at Att. 4); (4) a projection of incentives that would result from successful implementation of DSM programs in 1996 (id. at Att. 5); (5) the 1995 fund balance (id. at Att. 6); and (6) the 1994 fund balance (id. at Att. 7).

The Company calculated the 1996 CCs by adding the 1996 DSM program budget, $60,139,000, to the 1995 sum of over- and under-collections, $735,416, for a total cost recovery target of $60,874,416 (id. at Att. 4).[12] To obtain the CC for each rate class, the portion of the cost recovery target allocated to the rate class was divided by the 1996 forecasted sales for the rate class (id.). In addition, the Company proposed certain minor modifications for calendar year 1996 to the residential and C/I DSM programs that were approved by the Department in D.P.U. 94-112.[13]

B. Analysis and Findings

The Department first evaluates whether the components of the proposed 1996 DSM cost recovery target are acceptable. The two components of the proposed 1996 DSM cost recovery target are (1) the 1996 residential and C/I program budgets, and (2) the 1994 DSM program incentive calculation (reviewed in Section III, above). With respect to the 1996 program budgets, the Company proposed in its filing certain modifications to both residential and C/I programs for calendar year 1996. The projected DSM expenditures for 1996 are consistent with these changes.[14] Since the Company submitted to the Department its proposed 1996 program changes

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12 The 1995 undercollection includes $4,344,036 in incentives for 1994 (Exh. ME-2, at Att. 6).

13 For a description of the changes to these programs proposed by the Company, see Exh. ME-2, Atts. 8 through 11.

(continued...)

was filed on November 6, 1995, the 30-day review period expired on December 6, 1995 without further Department action.[15] Therefore, the Department finds that the Company has used appropriate program expenditure levels in its calculation of the 1996 CCs.

With respect to the 1994 DSM program incentive calculation, the Department has identified in Section III.C.1(d), above, corrections to the savings estimates used for the 1994 incentive calculation. Therefore, the Department approves the 1994 incentive for the purpose of establishing the 1996 CCs.

Having accepted the proposed program and budget modifications and the 1994 incentive calculation, and having reviewed the calculation of the over/undercollection from 1995, the Department hereby approves the 1996 CC rates identified in Table 5 attached to this Order. The 1996 CC rates shall be implemented effective January 1, 1996.

V. ORDER

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[14] (...continued)
On November 1, 1994, the Department approved the Amended Offer of Settlement ("Settlement") in D.P.U. 94-112. The approved Settlement included a "Preapproved Contract" for delivery of DSM programs, including cost and program design details for calendar year 1996. Section Six of the Preapproved Contract in the Settlement allowed the Company to propose changes to DSM program implementation. Pursuant to Section Six, expenditure levels are deemed approved if the Department does not initiate a more in-depth review of proposed adjustments to DSM programs within thirty days of being notified by the Company of such changes.

With respect to the program modifications proposed for 1996 (Exh. ME-2, at Att. 8-11), the Department allowed the 30-day period to elapse without initiating any further investigation into the proposed changes. Consequently, DSM expenditures projected for calculation of the 1996 CCs are consistent with implementation levels approved by the Department.

Accordingly, after due notice, hearing and consideration, it is hereby

ORDERED: That the lifetime savings estimates from 1993 and 1994 demand-side management installations for which Massachusetts Electric Company has requested approval are approved as set forth above; and it is

FURTHER ORDERED: That the 1996 conservation charge rates proposed by Massachusetts Electric Company are hereby approved; and it is

FURTHER ORDERED: That Massachusetts Electric Company shall implement on and after January 1, 1996, the conservation charges as set forth in Table 5, attached to this Order; and it is

FURTHER ORDERED: That Massachusetts Electric Company shall be required to file in June 1996, for incentive calculation purposes only, a summary of its 1995 monitoring and evaluation results, unless the Company undertakes substantial revisions to its programs; and it is

FURTHER ORDERED: That Massachusetts Electric Company shall file its next comprehensive Monitoring and Evaluation Report in June 1997; and it is

FURTHER ORDERED: That Massachusetts Electric Company shall comply with all other directives contained herein.

By Order of the Department,

John B. Howe, Chairman

Mary Clark Webster, Commissioner

Janet Gail Besser, Commissioner

TABLE 1. SUMMARY OF 1994 DSM ACTIVITIES

Total DSM Expenditures	$58.5 million
Energy Savings, Annual	140 GWH
Percent of Company Sales	0.85%
Peak Demand Savings	35 MW
Percent of Peak Demand	1.2%
Energy Savings, Lifetime	2,078 GWH
Cost of Saved Energy	2.92 ¢/KWH
Benefit/Cost Ratio	2.52

Note: "GWH" stands for gigawatthour, which equals 1 million kilowatthours ("KWH"). "MW" stands for megawatt, which equals 1,000 kilowatts ("KW").

(Exh. M-1, App. I-1, at 1; MECo FERC Form 1, at 401; MECo 1994 DSM Annual Report, Tables S and 3).

TABLE 2. Summary of MECo's Reported 1994 DSM Program Savings

	Annual MWH			Annual KW		
Program	Tracking	1st Look	Percent	Tracking	1st Look	Percent
Energy Initiative	49,764	47,499	95%	9,961	10,115	102%
Design 2000	29,602	25,812	87%	6,602	5,714	87%
Small C/I	16,098	16,045	100%	5,174	4,472	86%
Performance Engineering	8,412	15,348	182%	1,777	2,501	141%
C/I Complementary	1,011	1,045	103%	142	147	104%
C/I TOTAL	104,887	105,749	101%	23,656	22,948	97%
Lighting	11,364	12,379	109%	3,214	3,501	109%
Space Heat	7,655	7,564	99%	3,533	3,495	99%
Multi-Family	7,988	6,143	77%	3,754	2,887	77%
Energy Fitness	5,405	3,558	66%	1,168	908	78%
Appliance Recycling	2,821	4,496	159%	322	513	159%
Energy Crafted Home	265	242	91%	181	175	97%
Complementary	171	-153	-89%	292	313	107%
Super Efficient Refrigerator	---	39	---	---	4	---
Water Heater Rebate	7	7	100%	1	1	100%
Residential TOTAL	35,675	34,276	96%	12,465	11,797	95%
MECo TOTAL	140,562	140,025	100%	36,122	34,745	96%

Source: Exh. M-1, App. I-1, at 1

TABLE 3. Summary of MECo's Reported 1993 DSM Program Savings

	Annual MWH			Annual KW		
Program	1st Look	2nd Look	Percent	1st Look	2nd Look	Percent
Energy Initiative	32,615	32,615	100%	8,188	8,118	100%
Design 2000	28,972	27,534	95%	6,035	5,993	99%
Small C/I	15,510	16,334	105%	5,613	4,671	83%
Performance Engineering	5,603	6,399	114%	879	1,024	116%
C/I TOTAL	82,700	82,882	100%	20,715	19,876	96%
Lighting	8,451	8,451	100%	2,390	2,390	100%
Space Heat	7,415	7,415	100%	3,413	3,413	100%
Multi-Family	6,217	6,192	100%	2,922	2,910	100%
Energy Fitness	4,196	4,196	100%	948	948	100%
Appliance Recycling	2,336	3,772	161%	268	431	161%
Energy Crafted Home	123	123	100%	69	69	100%
Complementary	31	-27	-87%	60	64	107%
Home Energy Management	0	0	---	2,168	2,168	100%
Water Heater Rebate	128	128	100%	15	15	100%
Residential TOTAL	28,896	30,248	105%	12,253	12,408	101%
MECo TOTAL	111,596	113,130	101%	32,968	32,283	98%

Source: Exh. M-1, at V-10

TABLE 4. Annual Savings Programs by End Use (Meter Level)

Energy Initiative, Design 2000, and Performance Engineering

	1994			1993		
	Annual MWH	Lifetime MWH	Annual KW	Annual MWH	Lifetime MWH	Annual KW
Lighting	26,264	495,204	4,978	33,299	614,705	7,815
HVAC, EMS, Shell	16,761	212,506	5,697	6,582	54,485	1,640
Refrigeration	7,798	133,051	1,650	2,982	53,941	532
Process	15,293	206,878	2,577	3,174	41,101	813
Compressed Air	6,204	93,458	747	957	10,556	153
Other VSDs	2,519	37,777	407	7,188	107,817	1,409
Other Motors	7,453	105,118	1,065	5,723	91,842	952
Other	6,365	123,803	1,212	6,642	66,972	1,890
	88,659	1,407,795	18,331	66,548	1,041,417	15,205

Small C/I, Residential Programs, and C/I Complementary

Annual MWH Savings

	1994	1993
Lighting	32,374	30,175
HVAC, EMS, Shell	8,044	7,997
Refrigeration	7,518	6,036
Water Heating	2,327	2,518
Process	1,045	0
Other	22	0
	51,326	46,726

Sources:
Exh. M-1, at V-10 through V-27 and App. I-1, at 1-9, 20.
MECo 1994 DSM Annual Report, Table 6A

TABLE 5. Conservation Charge Rates

Rate Classes	1996 CC Rates (per KWH)
R-1/R-4	$0.00271
G-1	$0.00583
G-2	$0.00281
G-3/G-4	$0.00483